



**BILLING CODE 6560-50-P**

**ENVIRONMENTAL PROTECTION AGENCY**

**[EPA-HQ-OW-2011-0787; FRL- 9674-8]**

**Final National Recommended Ambient Water Quality Criteria for Carbaryl – 2012**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of availability of final criteria.

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**SUMMARY:** Pursuant to section 304(a) of the Clean Water Act (CWA), the Environmental Protection Agency (EPA) is announcing the availability of final national recommended water quality criteria for the protection of aquatic life from effects of carbaryl (EPA-820-R-12-007). The final criteria document incorporates the latest scientific knowledge on the toxicity of carbaryl to aquatic life. On November 1, 2011, EPA published draft national recommended water quality criteria for carbaryl and provided the public an opportunity to provide scientific views. EPA developed the aquatic life criteria based on EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (1985), (EPA/R-85-100). EPA's recommended section 304(a) water quality criteria provides guidance to States and authorized Tribes in adopting water quality standards for protecting aquatic life and human health. These criteria are intended to protect aquatic life and do not evaluate human health toxicity data. EPA's recommended water quality criteria provide technical information for states and authorized tribes in adopting water quality standards, but by themselves have no binding legal effect. EPA's national recommended final acute and chronic ambient water quality

criteria (AWQC) for protecting freshwater organisms from potential effects of carbaryl is 2.1 ug/L. For the protection of estuarine/marine organisms from potential effects of carbaryl, EPA is recommending a final acute AWQC of 1.6 ug/L. At the present time, there are insufficient data to calculate a chronic AWQC for estuarine/marine organisms.

**ADDRESSES:** Scientific views received from the public on the draft carbaryl criteria and the draft and final carbaryl criteria documents are available from the EPA Docket Center and are identified by Docket ID No. EPA-HQ-OW-2011-0787. They may be accessed online at:

- [www.regulations.gov](http://www.regulations.gov): Follow the on-line instructions.
- Email: [OW-Docket@epa.gov](mailto:OW-Docket@epa.gov)
- Mail: US Environmental Protection Agency; EPA Docket Center (EPA/DC)  
Water Docket, MC 2822T; 1200 Pennsylvania Avenue, NW, Washington, DC 20460.
- On Site: EPA Docket Center, 1301 Constitution Ave, NW, EPA West, Room 3334, Washington DC. This Docket Facility is open from 8:30 am until 4:30 pm, EST, Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Office of Water is (202) 566-2426.

For additional information about EPA's public docket visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

**FOR FURTHER INFORMATION CONTACT:**

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**SUPPLEMENTARY INFORMATION:****I. What are Water Quality Criteria?**

Water quality criteria are either narrative descriptions of water quality or scientifically derived numeric values that protect aquatic life or human health from the deleterious effects of pollutants in ambient water.

Section 304(a)(1) of the Clean Water Act requires EPA to develop and publish and, from time to time, revise, criteria for the protection of water quality and human health that accurately reflect the latest scientific knowledge. Water quality criteria developed under section 304(a) are based solely on data and scientific judgments on the relationship between pollutant concentrations and environmental and human health effects. Section 304(a) criteria do not reflect consideration of economic impacts or the technological feasibility of meeting the chemical concentrations in ambient water.

Section 304(a) criteria provide guidance to States and authorized Tribes in adopting water quality standards that ultimately provide a basis for assessing water body health and controlling discharges or releases of pollutants. Under the CWA and its implementing regulations, States and authorized Tribes are to adopt water quality criteria to protect designated uses (e.g., public water supply, aquatic life, recreational use, or industrial use). EPA's recommended water quality criteria do not substitute for the CWA or regulations, nor are they regulations themselves. Thus, EPA's recommended criteria do

not impose legally binding requirements. States and authorized Tribes have the discretion to adopt, where appropriate, other scientifically defensible water quality criteria that differ from these recommendations.

## **II. What is Carbaryl and Why are We Concerned about it?**

Carbaryl is a member of the N-methyl carbamate class of pesticides, which share a common mechanism of toxicity by affecting the nervous system via cholinesterase inhibition. Carbaryl has many trade names, but is most commonly known as Sevin®. It is an insecticide, a molluscicide, and is used to thin fruit in orchards. It is registered in the United States for controlling insect pests on over 115 agricultural and non-crop use applications, including home and garden uses (U.S. EPA 2007; U.S. EPA 2010). In a 2006 report, the US Geological Survey National Water Quality Assessment Program reported carbaryl as the second most frequently found insecticide in water, with detections in approximately 50% of urban streams (U.S.G.S. 2006). EPA has previously developed 304(a) criteria for the other three currently registered insecticides found most frequently in U.S. waters.

## **III. What are the Final Carbaryl Criteria?**

EPA is today publishing final national recommended water quality criteria for protecting aquatic life for carbaryl. EPA developed these final criteria using EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (1985), (EPA/R-85-100). The document has a new format that follows the approach in the EPA's *Guidelines for Ecological Risk Assessment*

(EPA/630/R-95/002F). EPA obtained toxicity data for developing the water quality criteria from peer-reviewed open literature studies and from studies submitted to the Office of Pesticide Programs for the registration and reregistration of pesticides. To ensure the quality of the information, EPA subjected the toxicity data and other information on the effects of carbaryl to both internal and external peer review. EPA also provided an opportunity for the public to provide scientific views on the draft recommended carbaryl criteria document. EPA received three comments in response to its solicitation. EPA reviewed the comments received and concluded that they did not warrant modification of the draft criteria for carbaryl. The comments and EPA responses can be found in the docket.

The final criteria statement is as follows: The available data for carbaryl, evaluated in accordance with EPA's guidelines for deriving aquatic life criteria (Stephan et al. 1985) [referenced in the criteria document], indicate that freshwater aquatic animals would have an appropriate level of protection if the following are attained:

1. The one-hour average concentration of carbaryl does not exceed 2.1 µg/L more than once every three years on average, the criterion maximum concentration or CMC (acute criterion).
2. The four-day average concentration of carbaryl does not exceed 2.1 µg/L more than once every three years on average, the criterion continuous concentration or CCC (chronic criterion).

The available data for carbaryl indicates that, estuarine/marine aquatic animals would have an appropriate level of protection if the following is attained:

1. The one-hour average concentration of carbaryl does not exceed 1.6 µg/L more than once every three years on average (except where a locally important species may be more sensitive).

At the present time, there are insufficient data to calculate a chronic AWQC for estuarine/marine organisms.

#### **IV. What is the Relationship between the Water Quality Criteria and State or Tribal Water Quality Standards?**

Water quality standards consist of three principal elements: designated uses, water quality criteria to protect those uses, and antidegradation requirements, providing for protection of existing water uses and high quality waters. As part of the water quality standards triennial review process defined in Section 303(c)(1) of the CWA, the States and authorized Tribes are responsible for developing, maintaining and revising water quality standards. Section 303(c)(1) requires States and authorized Tribes to review and modify, if appropriate, their water quality standards at least once every three years.

States and authorized Tribes must adopt water quality criteria into their water quality standards that protect designated uses. States may develop their criteria based on EPA's recommended section 304(a) water quality criteria or other scientifically defensible methods. A State's criteria must contain sufficient parameters or constituents to protect the designated uses. Consistent with 40 CFR 131.21, new or revised water quality criteria adopted into law by States and authorized Tribes on or after May 30, 2000 are the applicable water quality standards for CWA purposes only after EPA approval.

States and authorized Tribes may develop site-specific criteria for particular waterbodies as appropriate. EPA has published procedures for developing site-specific criteria, described in the *Guidelines for Deriving Numerical Aquatic Site-Specific Water Quality Criteria by Modifying National Criteria* (USEPA, 1984f). A site-specific criterion is intended to come closer than the national criterion to providing the intended level of protection to the aquatic life at the site, usually by taking into account the biological and/or chemical conditions (i.e., the species composition and/or water quality characteristics) at the site. If data in the national criterion document and/or from other sources indicated that the selected resident species range of sensitivity is *different* from that for the species in the national criterion document, States and authorized Tribes can use the *Resident Species Procedure* (Section 3.7.6 of the WQS Handbook). This procedure was first published in the 1983 *Water Quality Standards Handbook* (USEPA, 1983a) and expanded upon in the *Guidelines for Deriving Numerical Aquatic Site-Specific Water Quality Criteria by Modifying National Criteria* (USEPA, 1984f) and later detailed in the *"Interim Guidance on Determination and Use of Water Effect Ratio for Metals"* (EPA 1994).

## **V. Where Can I Find More Information About Water Quality Criteria and Water Quality Standards?**

For more information about water quality criteria and Water Quality Standards refer to the following: *Water Quality Standards Handbook* (EPA 823-B94-005a; August 1994); *Advanced Notice of Proposed Rule Making (ANPRM)*, (63 FR 36742; July 7, 1998); *Water Quality Criteria and Standards Plan -- Priorities for the Future* (EPA 822-

R-98-003; April 1998); *Guidelines and Methodologies Used in the Preparation of Health Effects Assessment Chapters of the Consent Decree Water Criteria Documents* (45FR79347; November 1980); *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA-822-B-00-004; October 2000); *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (EPA 822/R-85-100; 1985); *National Strategy for the Development of Regional Nutrient Criteria* (EPA 822-R-98-002; June 1998); and *EPA Review and Approval of State and Tribal Water Quality Standards* (65 FR 24641; April 27, 2000).

You can find these publications through EPA's National Service Center for Environmental Publications (NSCEP, previously NCEPI) or on the Office of Science and Technology's Home-page (<http://www.epa.gov/waterscience>).

## **References**

U.S. EPA. 2007. Risks of carbaryl use to the federally-listed California red legged frog. Office of Pesticide Programs, Washington, D.C., <http://www.epa.gov/espp/litstatus/effects/redleg-frog/carbaryl/determination.pdf>

U.S. EPA. 2010. Registration Review – Preliminary Problem Formulation for Ecological Risk and Environmental Fate, Endangered Species, and Drinking Water Assessments for Carbaryl. September 3, 2010. EPA-HQ-OPP-2010-0230-0004.



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and Ground Water, 1992-2001. Circular 1291. U.S. Geological Survey. Reston, VA.

**Dated: May 14, 2012.**

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